PF 0000054815/Sue

We claim:

1. A process for the preparation of water-soluble or water-swellable homopolymers or copolymers by homopolymerization or copolymerization of free-radically polymerizable water-soluble and/or water-dispersible monomers, optionally with further comonomers and optionally at least one crosslinker, in an inverse emulsion polymerization in the presence of at least one redox initiator pair comprising an oxidizing agent and a reducing agent, wherein the reducing agent is 2-hydroxy-2-sulfinatoacetic acid and/or salt thereof.

2. A process as claimed in claim 1, wherein free-radically polymerizable carboxylic acids, or salts or derivatives thereof are used as monomers.

3. A process as claimed in claim 1 or 2, wherein a mixture of acrylic acid and/or salt thereof and acrylamide is used as monomers.

4. A process as claimed in any of claims 1 to 3, comprising the following steps:
   a) dissolution of at least one water-in-oil emulsifier or at least one protective colloid in a hydrophobic liquid inert for the polymerization as a result of which an oil phase is formed,
   b) dissolution or dispersion of the monomers and optionally further comonomers, an oil-in-water emulsifier and the at least one redox initiator in water, as result of which an aqueous phase is formed,
   c) mixing of the oil phase and the aqueous phase until the aqueous phase is emulsified in the oil phase,
   d) homopolymerization or copolymerization of the monomers used and optionally further comonomers.

5. A process as claimed in any of claims 1 to 4, wherein no transition metal compounds are added in the process.

6. A homopolymer or copolymer preparable by a process of claims 1 to 5.

7. A homopolymer or copolymer as claimed in claim 6, which has a residual monomer content of at most 5% by weight, preferably at most 1% by weight, particularly preferably of at most 0.1% by weight, based on the total mass of the homopolymer or copolymer.

8. A water-in-oil emulsion comprising an oil phase which comprises at least one water-in-oil emulsifier or at least one protective colloid in an inert hydrophobic liquid, and an aqueous phase emulsified in the oil phase which comprises at least one homopolymer or copolymer as claimed in claim 6 or 7.

9. A water-in-oil emulsion as claimed in claim 7, which has a speck content of at most 0.5%, preferably at most 0.01%, based on the total mass of the W/O emulsion.

10. A solid composition comprising at least one water-in-oil emulsifier or at least one protective colloid, at least one oil-in-water emulsifier and at least one homopolymer or copolymer as claimed in claim 6 or 7.

11. The use of 2-hydroxy-2-sulfinatoacetic acid and/or salt thereof as reducing agent in a process for the preparation of homopolymers or copolymers by homopolymerization or copolymerization of free-radically polymerizable water-soluble and/or water-dispersible monomers, optionally with further comonomers, optionally at least one crosslinker, in an inverse emulsion polymerization in the presence of at least one redox initiator pair comprising an oxidizing agent and a reducing agent.

12. The use as claimed in claim 11, wherein no transition metal compounds are added in the process for the preparation of homopolymers or copolymers.

13. The use of a water-in-oil emulsion as claimed in claim 8 or of a homopolymer or copolymer as claimed in claim 6 or 7 for the thickening and/or as water-absorbing substance of aqueous solutions, preferably for the thickening of printing pastes.

14. A printing paste comprising homopolymer or copolymer as claimed in claim

6 or 7, which has a gel body content of at most 0.5%, preferably 0.15%, based on the total mass of the printing paste.

15. The use of 2-hydroxy-2-sulfinatoacetic acid and/or salt thereof as reducing component or a redox initiator pair comprising an oxidizing agent and a reducing agent for avoiding induction times during the inverse emulsion polymerization of free-radically polymerizable water-soluble and/or water-dispersible monomers, optionally with further comonomers, during which no transition metal compounds are added.